

PATENT APPLICATION NO. 10/722,556

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CLAIM SUMMARY DOCUMENT

The following listing of claims will replace all prior versions and listings of claims in this application.

1. **(Currently Amended)** A surface-mounted light-emitting diode having a top surface and a bottom mount surface, comprising:
 - a light-emitting diode chip sealed in an optically transmissive resin;
 - a plurality of metallic films formed at different locations of said optically transmissive resin; and
 - a plurality of electrodes formed on said light-emitting diode chip, wherein said electrodes are connected to respective ones of said metallic films to achieve electrical conduction there between, and one of said respective metallic films is composed of a substantially single material and is directly connected to one of said electrodes of the light emitting diode chip, said one of said respective metallic films is exposed at the bottom mount surface of the light-emitting diode.
2. **(Original)** The surface-mounted light-emitting diode according to claim 1, wherein said light-emitting diode chip is mounted on a first metallic film of said metallic films to achieve electrical conduction between a lower electrode on said light-emitting diode chip and said first metallic film, and at least one wire is connected between at least one upper electrode on said light-emitting diode chip and a second metallic film of said metallic films to achieve electrical conduction between said at least one upper electrode on said light-emitting diode chip and said second metallic film.
3. **(Original)** The surface-mounted light-emitting diode according to claim 2, wherein at least said first metallic film of said metallic films is formed in a conical

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shape having a bottom and a reflective inner surface, and wherein said light-emitting diode chip is mounted on the bottom.

4. **(Original)** The surface-mounted light-emitting diode according to claim 3, wherein a layer of optically transmissive resin containing a fluorescent material therein is formed inside said conical shape to cover said light-emitting diode chip.

5. **(Original)** The surface-mounted light-emitting diode according to claim 3, wherein a layer of optically transmissive resin containing a diffuser therein is formed inside said conical shape to cover said light-emitting diode chip.

6. **(Original)** The surface-mounted light-emitting diode according to claim 2, wherein an optically transmissive resinous lens is formed above said light-emitting diode chip.

7. **(Original)** The surface-mounted light-emitting diode according to claim 2, wherein at least said first metallic film of said metallic films is planar in shape.

8. **(Original)** The surface-mounted light-emitting diode according to claim 1, wherein said light-emitting diode chip is mounted on an insulator member, and wherein a wire is connected between an upper electrode on said light-emitting diode chip and one of said metallic films to achieve electrical conduction between said upper electrode on said light-emitting diode chip and said one of said metallic films.

9. **(Original)** The surface-mounted light-emitting diode according to claim 7, wherein an optically transmissive resinous lens is formed above said light-emitting diode chip.

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10. **(Original)** The surface-mounted light-emitting diode according to claim 7, wherein a resist layer is formed on different areas of the surface of said optically transmissive resin upon which said metallic films are formed.

11. **(Original)** The surface-mounted light-emitting diode according to claim 2, further comprising another wire connected between another upper electrode on said light emitting diode chip and a third metallic film of said plurality of metallic films to achieve electrical conduction between said another upper electrode on said light emitting diode chip and said third metallic film.

12. **(Original)** The surface-mounted light-emitting diode according to claim 3, wherein an optically transmissive resinous lens is formed above said light-emitting diode chip.

13. **(Original)** The surface-mounted light-emitting diode according to claim 4, wherein an optically transmissive resinous lens is formed above said light-emitting diode chip.

14. **(Original)** The surface-mounted light-emitting diode according to claim 8, wherein another wire is connected between another upper electrode on said light-emitting diode chip and another one of said metallic films to achieve electrical conduction between said another upper electrode on said light-emitting diode chip and said another one of said metallic films.

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15. **(Original)** The surface-mounted light-emitting diode according to claim 8, wherein an optically transmissive resinous lens is formed above said light-emitting diode chip.

16. **(Original)** The surface-mounted light-emitting diode according to claim 8, wherein a resist layer is formed on different areas of the surface of said optically transmissive resin upon which said metallic films are formed.

17. **(Original)** The surface-mounted light-emitting diode according to claim 9, wherein a resist layer is formed on different areas of the surface of said optically transmissive resin upon which said metallic films are formed.

18. **(Currently Amended)** A light-emitting diode comprising:
a light-emitting diode chip located adjacent an optically transmissive resin;
at least one metallic film formed directly on and exposed from a surface of said optically transmissive resin; and
at least one electrode located on said light-emitting diode chip, wherein said electrode is directly connected to said metallic film to achieve electrical conduction there between, and said metallic film is composed of a substantially single material.

19. **(Previously Presented)** The light-emitting diode according to claim 18, wherein said light-emitting diode chip is mounted on another metallic film to achieve electrical conduction between a lower electrode on said light-emitting diode chip and said another metallic film, and at least one wire is connected between the at least one upper electrode on said light-emitting diode chip and the at least one metallic film to achieve electrical conduction between said at least one upper electrode on said light-emitting diode chip and said at least one metallic film.

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20. **(Previously Presented)** A method of making the light-emitting diode of claim 18, comprising:

providing a substrate with recesses;

forming a plurality of metallic films in the recesses of the substrate;

mounting an LED chip to one of the metallic films;

connecting a wire between the LED chip and another one of the metallic films to achieve an electric connection between an electrode on the LED chip and the another one of the metallic films;

placing a resin on the LED chip and metallic films; and

removing the substrate.